

REMARKS

Claims 1, 3, 4, 9-12, 14-20 and 24 are pending.

Claims 2, 5-8, 13 and 21-23 have been canceled.

Claims 14-19 have been indicated as allowable.

Claim 1 has been amended to eliminate the subject matter that Examiner Cleveland alleged was new matter.

Claim 20 has been amended to recite a more limited genus of stimuable phosphors than the genus of stimuable phosphors present in claim 18. The genus of stimuable phosphors in claim 20 relate to the genus of claim 18 in that each of the variables a, b, c and d in claim 18 are zero ("0") in claim 20.

No new matter has been added by way of the above-amendment.

[I] Interview

Applicants note with appreciation that Examiner Lin and his supervisor, Mr. Meeks, conducted a personal Interview with Applicants' representative, Garth M. Dahlen, Ph.D., Esq. (#43,575) on June 8, 2006 to discuss the issues relating to the above-identified application. On the interview summary form, the Examiner states:

Applicants representative proposed claim amendments to overcome the 112 issues in the case. The amendments appear to be sufficient to overcome the 112 rejections. The scope of evidence necessary to be commensurate in scope with the claimed invention to show an unexpected benefit resulting from the order of steps was discussed.

As is discussed in detail below, the standing of claims 1 and 20 was separately discussed during the Interview.

With respect to claim 20, Mr. Meeks felt that an additional Declaration (containing statements by Declarant that the unexpected results described in the 4/12/05 Declaration would

be shown for "any stimuable phosphor") was necessary, since claim 20 was not limited to any particular phosphor. As is discussed in detail below, Applicants have amended claim 20 to recite a relatively small set of stimuable phosphors, and Applicants believe that no further Declarative evidence is necessary.

With respect to claim 1, Examiner Lin and Mr. Meeks did not take a position during the Interview on the patentability of this claim based on the evidence of record.

Applicants now provide more details regarding the discussion with Examiner Lin and his Supervisor, Mr. Meeks.

[III] Issues Under 35 U.S.C. 112, first paragraph

Claims 1, 3-4, 9-12 and 21-24 are rejected under 35 U.S.C. 112, first paragraph. The Examiner believes that claims 1, 22 and 23 contain "new matter." Applicants respectfully traverse the rejection.

The Examiner has taken the position that the phrase "atmosphere comprising nitrogen" at line 4 of claim 1 and the phrase "atmosphere of nitrogen and oxygen" at line 6 of claim 1 constitute new matter. In response, Applicants have deleted the description of the atmosphere.

In view of the cancellation of claims 22 and 23, the objection to "new matter" being present in claims 22 and 23 is rendered moot.

In view of the foregoing, Applicants respectfully submit that the pending claims fully satisfy the requirements of 35 USC 112, first paragraph and withdrawal of the rejection is respectfully requested.

[III] Issues under 35 U.S.C. 112, second paragraph

Claims 21 and 22 are rejected under 35 U.S.C. 112, second paragraph for being indefinite. Applicants respectfully traverse the rejection.

In view of the cancellation of claims 21 and 22, the objection to the indefiniteness of claims 21 and 22 is rendered moot.

[IV] Prior Art Based Issues

The following rejections are pending:

(A) Claims 1, 3, 9-10, 12 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al. (U.S. Patent 4,028,550, hereafter '550) in view of Leblans et al. (U.S. Patent 5,360,578, hereafter '578), Shimada et al. (U.S. Patent 5,028,509, hereafter '509), and Nakano et al. (U.S. Patent 5,952,666, hereafter '666);

(B) Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss '550 in view of Leblans '578, Shimada '509, and Nakano '666, as applied to claim 1, and further in view of Jamil et al. (U.S. Patent 5,772,916, hereafter '916);

(C) Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss '550 in view of Leblans '578, Shimada '509, and Nakano '666, as applied to claim 1, in further view of Hultsch et al. (U.S. Patent 4,405,454, hereafter '454); and

(D) Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss '550 in view of Leblans '578.

Applicants respectfully traverse each of the rejections.

During the June 8 Interview, both independent claims 1 and 20 were discussed in connection with:

- a) the differences between the claimed invention and the teachings of the base reference;
- b) the standing of each of these claims, i.e., does a *prima facie* case of obviousness even exist;
- c) the evidence of record of unexpected results; and
- d) whether the claims are commensurate in scope with the unexpected results.

All participants in the Interview agreed that the inventive order of steps in the process is not explicitly taught by the cited prior art. However, the fact remains that the latest Office Action prepared by Examiner Cleveland indicates that it is *prima facie* obvious to change the order of steps taught in the prior art process in all situations, and especially in the present one. Neither Examiner Lin nor Mr. Meeks were willing to commit to a position on Examiner Cleveland's statements during the time of the Interview.

Applicants respectfully request that Examiner Lin carefully reviews the evidence of record. Applicants firmly believe that Examiner Lin will find that claims 1 and 20, as amended herein are patentable.

Applicants also respectfully request that Examiner Lin considers claims 1 and 20 separately in the analysis. As both are independent claims, these claims do not stand and fall together.

[IVA] Does a *prima facie* case of obviousness even exist?:

As noted above, all participants in the Interview agreed that the inventive order of steps in the process is not explicitly taught by the cited prior art. However, the fact remains that the latest Office Action prepared by Examiner Cleveland indicates that it is *prima facie* obvious to change the order of steps taught in the prior art process in all situations, and especially in the present one.

Applicants respectfully submit that reliance on *per se* rules of obviousness is legally incorrect. As stated in *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995)

The use of per se rules, while undoubtedly less laborious than a searching comparison of the claimed invention — including all its limitations — with the teachings of the prior art, flouts section 103 and the fundamental case law applying it. *Per se* rules that eliminate the need for fact-specific analysis of claims and prior art may be administratively convenient for PTO examiners and the Board. But reliance on per se rules of obviousness is legally incorrect and must cease.

Applicant also notes *In re Cofer*, 354 F.2d 664, 667, 148 USPQ 268, 271 (CCPA 1966), stating that “it is facts appearing in the record, rather than prior decisions in and of themselves, which must support the legal conclusion of obviousness under 35 U.S.C. § 103.”

What these cases teach is that it is improper to view previous cases as setting forth a blanket rule that should be used in all situations in the obviousness analysis. In the present situation, it is improper to view any court ruling as standing for the notion that it is obvious under all circumstances to modify the order of steps in a process taught by a reference when the reference does not explicitly recite the modified order that is claimed. Each case must be viewed on its own merits and the facts leaning toward obviousness must be weighed with the facts leaning toward nonobviousness.

In the present case, there are at least two modifications to the order of steps taught by Weiss '550 necessary to obtain the method for manufacturing a radiation image conversion panel as recited in both instant claims 1 and 20. First, Weiss '550 does not calcine the stimuable phosphor as is claimed. Second, Weiss '550 teaches the order of steps of a) adding a binder to the dispersion medium, b) adding the phosphor to the dispersion medium and then c) wet classifying; whereas the inventive method is in the order b), c) and then a).

It is important to note that all of the differences between the instant method and the teachings of Weiss '550 are not cured by the teachings of the secondary references. Accordingly, Examiner Cleveland has relied on caselaw (*In re Burhans*) in support of the obviousness finding that it would be obvious to modify the order of steps in Weiss '550 to obtain the instant method.

Applicants firmly believe that the differences between the instant method and the teachings of Weiss '550 (as supported and modified by the cited secondary references) are of such a magnitude as to not be obvious. Applicants have shown that this particular change in the order of steps provides a different product and that the properties of the product are not predictable. An important factor in the obviousness analysis is whether the change to the order of steps described in the references could lead to similar products with predictable properties. Here, the evidence of record weighs heavily in favor of nonobviousness. Thus, a *prima facie* case of obviousness cannot be said to exist over the teachings of the cited references based on *per se* rules applied by the Examiner. As such, withdrawal of the rejections is respectfully requested.

[IVB] Rule 132 Declaration Filed 4/12/05:

Applicants respectfully submit that even if a *prima facie* case of obviousness does exist, that the evidence of record of unexpected results overcomes the *prima facie* case. In addition, claim 20, as presently amended, recites a relatively small genus of stimulable phosphors and is commensurate in scope with the evidence of unexpected results, and certainly claim 1 is even more narrow in scope than the evidence of unexpected results.

Most relevant is the evidence provided in a Rule 132 Declaration submitted with the Amendment on April 12, 2005. In the 4/12/05 Declaration, experiments are described as evidence that the inventive order of steps provides a product having unexpectedly superior properties over the product formed by the process of the base reference to Weiss '550. The merits of this evidence are now discussed.

In choosing an experimental design to show unexpected results over a base reference, ideally only a single variable is changed, but that is not possible in this case, since the claimed process differs from the exemplified process of Weiss '550 with respect to: a) the inventive process incorporates calcined phosphor whereas Weiss '550 does not disclose a calcined phosphor; and b) the inventive process has a different order of steps than the order of steps performed by Weiss '550.

Since two variables differ between the presently claimed method and the method of Weiss '550, it was necessary to conduct four separate processes as follows:

Inventive Example A: calcined phosphor and inventive method

- a) adding a calcined phosphor
- b) wet classifying
- c) adding a binder

Comparative Example B: noncalcined phosphor and inventive method

- a) adding a noncalcined phosphor
- b) wet classifying
- c) adding a binder

Comparative Example C: calcined phosphor and method of Weiss '550

- a) adding a binder
- b) adding a calcined phosphor
- c) wet classifying

Comparative Example D: noncalcined phosphor and method of Weiss '550

- a) adding a binder
- b) adding a noncalcined phosphor
- c) wet classifying

The radiation image conversion panels A-D were prepared based on the process of Inventive Example A and Comparative Examples B-D, respectively.

From the measurement results, it was revealed that radiation image conversion panels B and D (both were comparative examples), which were manufactured using uncalcined product, hardly exhibited stimuable emission, and their image qualities were so poor to be not worthy of evaluation.

Next, the graininess of radiation image conversion panels A and C, which exhibited stimuable emission, were evaluated. From the measurement results, it was found that the graininess of radiation image conversion panel A (the present invention), with which the calcined product was wet-classified before being mixed with the binder, was excellent and about 40% better than that of radiation image conversion panel C (comparative example), with which the calcined product was mixed with the binder before being wet-classified.

The results of these experiments are described in the following Table 1, which is reproduced herein for the Examiner's convenience.

Table 1

Radiation image conversion panel	Coating liquid preparation process	Sensitivity	Graininess (X10³)	Remarks
A	Calcined product was wet-classified before being mixed with binder	100	3.2	Present invention
B	Uncalcined product was wet-classified before being mixed with binder	0.13	-	Comparative example
C	Calcined product was mixed with binder before being wet-classified	91	5.3	Comparative example
D	Uncalcined product was mixed with binder before being wet-classified	< 0.1	-	Comparative example

It is apparent from Table 1 that the superior results are obtained by selecting the order of performing the process steps. In view of the fact that the skilled artisan would not envision any increase in properties of the product radiation image conversion panel based on modifying the order of the steps, the present method is truly unexpected.

Furthermore, the 4/12/05 Declaration describes experiments, which were performed in order to verify the effects of vigorous stirring in a large quantity of dispersion medium and ball milling on the samples. As can be seen from Example 1, Weiss '550 teaches the use of ball milling of the phosphor whereas the inventive process includes stirring.

The measurements were expressed as relative values, assuming that the value of sample G is 100, and the results are given in Table 2.

Table 2

Sample name	Calcined or uncalcined	Process applied to samples	Amount of stimuable emission	Remarks
E	Uncalcined	Stirring	0.1	Comparative example
F	Uncalcined	Ball milling	< 0.1	Comparative example
G	Calcined	Stirring	100	Present invention
H	Calcined	Ball milling	47	Comparative example

A comparison between sample E and sample G, or between sample F and sample H, illustrates that the samples not subjected to calcination exhibited an insufficient amount of stimuable emission. Moreover, comparison between sample H, which was ball-milled, and sample G that was vigorously stirred at 500 rpm, shows that ball milling remarkably decreases the amount of stimuable emission.

It is apparent from Table 2 that the superior results are obtained by vigorous stirring such as described in inventive claim 1 in a large quantity of dispersion medium versus ball milling on the samples. In view of the fact that the skilled artisan would not envision any increase in properties of the product radiation image conversion panel based on replacing the ball milling step with the vigorous stirring of the present invention, the method of present claim 1 is truly unexpected.

In view of the foregoing, Applicants respectfully submit that even if a *prima facie* case of obviousness does exist, that the evidence of record of unexpected results overcomes the *prima facie* case.

[IVC] Mr. Meeks' comments made during the June 8 Interview:

With respect to claim 20, Mr. Meeks felt that an additional Declaration (containing statements by Declarant that the unexpected results described in the 4/12/05 Declaration would

be shown for "any stimuable phosphor") was necessary since claim 20 was not limited to any particular phosphor.

With respect to claim 1, Examiner Lin and Mr. Meeks did not take a position during the Interview on the patentability of this claim based on the evidence of record.

[IVD] Applicants response to Mr. Meeks' comments made during the June 8 Interview:

As the Examiner will note, Applicants have amended claim 20 to recite a relatively small set of stimuable phosphors, and Applicants believe that no further Declarative evidence is necessary. It is proper for the Examiner to view the evidence of record through the eyes of one skilled in the art and draw the same inferences that the skilled artisan would draw. Applicants respectfully submit that the key point of the unexpected results is the use of the calcined stimuable phosphor and the order of steps. This key point is what is claimed. As such, the presently claimed method as recited in claims 1 and 20 are patentable over the cited references.

Withdrawal of the rejections is respectfully requested.

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D., Esq. (Reg. No. 43,575) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

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Respectfully submitted,

By 

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